Religion and Terrorism:
The Religious Utility Hypothesis[*]

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Abstract

This chapter surveys existing work on the connection between religion and terrorism and proposes an alternative theory, the *religious utility hypothesis*, in which terrorist organizations piggyback on the utility of religion to large numbers of people, as a source of meaning and belonging. By tying the duty to perform violent acts to an individual's faith and community, terrorist organizations can (1) elicit costlier sacrifices (e.g. suicide bombing), even when these actions run counter to the actor's moral convictions, (2) motivate a small group of extreme types to radicalize a larger community, and (3) use moderate religious organizations, which are shielded from monitoring, infiltration and closure due to their value to the community, for recruitment and incubation of more extreme groups.

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1 Religion and Terrorism

Coming a decade after the dissolution of the Soviet Union and the end of the Cold War, the events of September 11, 2001 turned the focus from international conflict to the threat posed by radical non-state actors. Even prior to 9/11 there were indications of a "new, religiously motivated terrorism" (Simon & Benjamin 2000, p. 59). The 9/11 attacks and those that followed were not targeted assassinations of political antagonists, or attacks on military capabilities, nor were they hostage taking for political leverage, ransom or retribution. They were above all symbolic (Bloom 2005). Of particular note was that the modern jihadists made few tangible political demands, but rather believed they were waging a 'cosmic war' of good versus evil (Jurgensmeyer 2003). That focused attention on the role of ideology in terrorism, which is the subject of this chapter.

We would like to know: What is the connection between religion and the use of violence in pursuit of terror? Is religion important to religious terrorism or incidental? Does terrorism naturally follow from religious belief and doctrine? Much has been written about these issues. We will selectively survey the existing explanations and sort them into two competing hypotheses. In one view, religious ideology is a direct cause of terrorism. I call this the *religious maladaptation hypothesis*. In the other, religion is incidental. Remove religion and terrorism would take place under a different guise. I call this the *religious substitution hypothesis*. Both hypotheses have explanatory power, but are also limited in certain respects.

Drawing on recent work in the social sciences, I arrive at an alternative explanation called the *religious utility hypothesis* in which religion is neither causal nor incidental. Rather it is useful for terrorist organizations to operate within a religious ecology because of the utility of religion to individuals. The high value of religion as a source of meaning and belonging is implicit in much of the economics of religion (e.g. Berman 2009, McBride & Richardson 2012). We bring it to the fore and explore its consequences for recruitment, organization and action by terrorist groups. In particular, deadly organizations and ideologies can piggyback on religious institutions, using them for recruitment and incubation of more extreme groups,

precisely because of the utility of religion to large numbers of people. That is, religion is an adaptation that can be parasitically exploited by terrorist groups.

The long and widespread history of religious violence, from crusades, inquisitions and witch burning to Al-Qaeda and ISIS, has buttressed claims that terrorism is a general feature of religion (e.g. Avalos 2005). This reached its high point with the New Atheists (e.g. Dawkins 1991, Hitchens 2007). In their view, religion is a fundamentally irrational set of beliefs and practices, a kind of mind-virus antithetical to human progress, and inspiring of violence against non-adherents and non-compliant adherents alike. Fueling this religious maladaptation hypothesis is the use of suicide attacks. Pape (2005) finds that between 1980 and 2003 suicide attacks account for only three percent of all terrorist activity, but 48 percent of fatalities from terrorism. Moreover, groups that identified as religious were more likely to conduct suicide attacks and suicide attacks by such groups were more lethal than those conducted by secular groups (Pape 2005, Berman 2009). The potential motivations for suicide terrorism in terms of religious status and afterlife rewards are encapsulated in the statement inspired by Osama bin Laden: "We love death like you love life". This creates the (erroneous) impression of "theologically-motivated suicidal drones" (Berman & Laitin 2008).

According to the competing religious substitution hypothesis, the religious accouterments of terrorist groups are incidental, not essential. They are simply a banner under which grievances born of economic and socio-psychological forces are expressed. Despite the rhetoric, the perpetrators of jihadist attacks in Europe and the US tend not to be wholly religious, in any traditional sense. Roy (2017) compiles a database of 140 individuals either involved in terrorism in France or embarked on global jihad from France or Belgium in the past 20 years. Some common themes emerge. These individuals were young, had rejected their parents' traditional religious beliefs, often expressed an interest in violence, and were westernized, drinking, smoking and frequenting nightclubs, before turning to petty crime. Many were radicalized in prison by other prisoners. This is not the biography most would expect. These youth were not molded by a totalitarian religious environment nor did they exhibit a

lifelong obsession with religious perfection and martyrdom. Instead Roy describes them as "born-again Muslims", part of a youth movement at variance with traditional Islam, especially in its obsession with death (Roy 2017, ch. 2-3). Were jihadist groups not the most effective and organized force on the global menu of radicalism, these youth would express their revolutionary fervor and violence through other extreme ideologies. Thus Roy claims that the puzzle is "the Islamification of radicalism", not the "radicalization of Islam".

Despite both having explanatory power, these hypotheses are incomplete and inconsistent with evidence in certain respects, as we shall discuss. As such, I propose a hypothesis that combines elements of the maladaptation and substitution hypotheses, but which emphasizes the value of religion as a source of meaning and belonging. This religious utility hypothesis makes fundamentally different predictions regarding causality and welfare, and suggests distinct approaches to combating terrorism.

The goals of terrorist organizations range from territorial claims and influence over government policy, all the way to victory in a cosmic clash of civilizations. In achieving their objectives, terrorist groups face a long list of challenges, including searching for recruits, motivating members, raising funds, and avoiding internal conflict. All of this must be done while avoiding monitoring and infiltration by security agencies. How does religion help terrorist organizations to meet these challenges?

Alcorta & Sosis (2005, p. 325) identity four universal features of religion:

- Belief in supernatural agents and counterintuitive concepts.

- Communal participation in costly ritual.

- Separation of the sacred and the profane.

- Importance of adolescence as the life history phase most appropriate for the transmission of religious beliefs and values.

The seminal religious club model of Iannaccone (1992) focuses on the second feature, proposing that costly and sometimes bizarre religious requirements in terms of dress, diet and ritual

limit free-riding in religious communities (see the survey by Carvalho 2019). They do so by (1) stigmatizing members in mainstream society, effectively taxing outgroup interactions, and (2) selecting types who are the most cooperative and committed to the group (Aimone et al. 2013). Berman (2009) shows why such close-knit and cooperative religious groups are ideal candidates for hijacking by radical leaders/members, whose aim it is to convert groups from religious ritual and charity to deadly terrorist activities. High entry costs, complex behavioral codes, and intensive ingroup participation mean that terrorist organizations incubated in strict religious groups have lower rates of defection and are more difficult for security agencies to monitor and infiltrate (Iannaccone & Berman 2006, Berman & Laitin 2008).

There remains the question of why secular groups cannot replicate this religious structure to improve trust and cooperation among groups members. Why do local sporting clubs, for example, not impose strict behavioral rules on existing group members? Surely a team that could concentrate a large fraction of members' time on training and team bonding would outcompete all others, *ceteris paribus*. Hooliganism aside, why do budding entrepreneurs in terror not target your local soccer team for recruitment and organization of terrorist activities? There appears to be something special about religion. For example, Sosis (2000) and Sosis & Bressler (2003) analyze a database of 19th century utopian communes showing that religious communes are stricter and longer lived than secular ones. They are four times more likely to survive a given year and impose twice as many costly requirements on members.

One important factor is the first feature of religion listed by Alcorta & Sosis (2005)—the supernatural. In particular, the belief in supernatural punishment is supposed to promote ingroup trust and cooperation (e.g. Bulbulia 2004a,b, Johnson & Krüger 2004, Johnson 2011, Levy & Razin 2012). This might explain why such groups can make costlier demands on members and survive longer. Sosis & Ruffle (2003) conduct common-pool resource games in religious and secular kibbutzim finding that religious males are significantly more cooperative than secular males. Norenzayan (2013) proposes that big gods—moralizing agents with the

capacity to monitor and punish norm violations—were crucial in the transition to large-scale societies, supporting trust and cooperation beyond the kin group. Accordingly, Purzycki et al. (2016) find in die-under-the-cup experiments conducted in eight communities around the world that subjects who believe in big gods are more honest toward distant coreligionists.[1]

Of course, supernatural punishment could be just one of a number of interrelated factors that distinguish religious from secular groups. A general adaptationist view is that religion is a bundle of ideas, rituals and institutions that has evolved, under distinct pressures at different times and places, to satisfy the needs of human societies (e.g Bulbulia 2004a). Scholars in the 1960s believed that religion would soon die out, its epistemic function lost to science and its psychic comforts replaced by the material comforts of the modern, industrialized world (Norris & Inglehart 2011). Clearly, that has not happened. To some degree, religions have adapted to changing societal needs. See for example the new veiling movement among Muslims (Carvalho 2013) and the spread of Pentecostalism in Latin America (Cox 2009). Hence religion continues to be valuable to large numbers of people, especially as a source of meaning and belonging (Baumeister & MacKenzie 2011). Religious Americans, for example, enjoy better mental and physical health, and educational and marital outcomes (e.g. Stark 2012). In producing these results, it is not clear which aspects of religion are doing the heavy lifting and I am ultimately agnostic on this point.

Whatever the mechanism may be, the utility of religion has large implications for religious terrorism. Developing a simple model combined with a survey of recent work on extremist groups (Carvalho 2016, Carvalho & Sacks 2020, in preparation), I argue that a religious organization can transition to terrorist activities if and only if the value to individuals of joining the organization is sufficiently high. Hence it is the utility of religion that makes it attractive for terrorist organizations to hijack religious ideology and institutions. If the religious utility hypothesis is correct then combating terrorism through the suppression of religious groups may reduce human welfare by removing an important source of meaning

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[1]In these experiments, participants' payoffs that depend on the roll of a six-sided fair die, which is privately observed by participants (e.g. under a cup) and reported to the experimenter. Dishonest reporting cannot be identified at the individual level, but can be identified at the group level.

and belonging. Moreover, new quasi-religious groups might emerge that mimic some of the evolved properties of religious ideology and ritual, and which could be less satisfying and just as deadly. In fact, the word 'terrorism' came into the English language from the 'Reign of Terror' during the French Revolution, in which tens of thousands were killed in an attempt to remake France, including replacing religious dogma and institutions with various quasi-religious cults (e.g. Popkin 2016).

My conclusion is that the preponderance and lethality of religious terrorism is not necessarily evidence of the maladaptive nature or state of religion. Nor is it unrelated to religion. Instead it might reflect religion's enduring value to large numbers of people as a source of meaning and belonging.

2 The Maladaptation Hypothesis

In *The Selfish Gene*, Richard Dawkins coined the term 'meme' to refer to "the new replicator, [...] a unit of cultural transmission, or a unit of *imitation*" (Dawkins 1976, p. 249, emphasis in original). In a later essay titled *Viruses of the Mind*, Dawkins conceived of religions as meme-complexes akin to computer viruses, "pieces of code that graft themselves into existing, legitimate programs and subvert the normal actions of those programs" (Dawkins 1991, p. 2). In this view, the spread of religion is epidemiological and religious belief and action leave little room for rationality, or even choice. Dawkins writes, "it is a telling fact that, the world over, the vast majority of children follow the religion of their parents rather than any of the other available religions" [p. 7].

Not only is there little scope for human agency in this view, but the unconscious spread of religion is also harmful. This is the maladaptation hypothesis in a nutshell: The religious package of ideas spreads like a virus, infecting individuals with false ideas and promoting violence toward outgroup members, as well as noncompliant ingroup members. This has been the working model of the New Atheists (e.g. Hitchens 2007). From this perspective, religious terrorism springs directly from religious doctrine, both in its political objectives and religious

methods. Selected passages from religious texts lend weight to this claim. Even Buddhist teachings have been used to justify violence. Consider Japanese militarism in World War II. The Zen patriarch Sawaki Kodo engages in the following contortions: "Whether one kills or does not kill, the precept forbidding killing [is preserved]. It is the precept forbidding killing that wields the sword. It is the precept that throws the bomb" (Victoria 1997, p. 36).

The maladaptation hypothesis clearly has some explanatory power. In several respects, however, it is incomplete and inconsistent with evidence.

First, the maladaptation hypothesis neglects the institutional framework in which cultural transmission of religious beliefs occurs (Bisin & Verdier 2017, Bisin, Carvalho & Verdier forthcoming). How scriptural injunctions translate into action depends on the entire religious ecology. They are passed down, modified, and reinterpreted by religious leaders, parents and community members to create a shared set of narratives and beliefs, as well as a system of norms that valorizes religious sacrifice. How institutions regulate cultural transmission of religious beliefs and preferences is a subject I take up in Section 4.

Second, the maladaptation hypothesis does not explain why terrorism is not a regular part of religion, but arises only in certain contexts. For example, the separation of church and state in the United States has led to peaceful coexistence and competition among numerous Christian denominations (Iannaccone & Berman 2006). Bloom (2005) reports that Palestinian boys and girls express interest by the age of six in becoming martyrs and display even greater commitment by age twelve. Clearly, this is not independent of the political context. The most striking example comes from the Ottoman empire in World War I. While it might be held that violence against non-Muslims is an inevitable outcome of the concept of jihad in Islam, the experience of World War I suggests otherwise. As described by Rogan (2015), Germany persuaded the Ottoman sultan, in his capacity as caliph, to declare global jihad in order to weaken the Entente powers through Muslim uprisings in their colonies. All three Entente empires contained significant Muslim populations, most notably in India, North Africa and the Caucasus. This drew the Entente powers into war in the Middle East and

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North Africa. The anticipated uprisings did not occur, however, and many Muslims fought on the side of their colonial powers. Global jihad was announced by the leader of the global Muslim community, but not observed.

Third, the maladaptation hypothesis neglects the many apparent benefits conferred by religious affiliation and participation, as discussed in Section 4.1.

3   The Substitution Hypothesis

Directly opposed to the maladaptation hypothesis is the view that religion is incidental to religious terrorism. From this perspective, religion is a language that can be adopted to describe and legitimize violence. Violence is not caused by religious ideology and institutions, but rather stems from underlying economic, political and socio-psychological problems. Religion is also one of many such languages. People may coordinate on religion from time to time to understand and moralize their pursuit of violence. But there is nothing special about religion; it is a matter of pure coordination. After all, terrorism was associated with secular groups such as the Baader-Meinhof gang, the Palestine Liberation Organization (PLO) and various Latin American groups until the 1980s, and the pioneer of the suicide bombing was the Marxist-Leninist LTTE. This is the religious substitution hypothesis.

The substitution hypothesis has different strands each with its own view of the underlying motivation for the violence. In the wake of 9/11, the view proposed by leading American figures in government and academia, including then President George W. Bush and former Vice President Al Gore, was that terrorism is caused by poverty and lack of education (see Kruger & Malečková 2003, p. 119). These factors lower the opportunity cost of terrorist activity and create grievances which are pursued through violence. They also make it easier to motivate suicide bombers, not through religious duty and afterlife rewards, but by payments to their families, as occurred in the Palestinian territories and Sri Lanka. Israel's policy of destroying the homes of the families of Palestinian suicide bombers is an example of the perceived importance of pecuniary incentives. This perspective suggests a policy of

combating terrorism by boosting economic development around the world.

There is substantial evidence against this materialist view of terrorism. In his study of prisoners from two Egyptian militant groups, Shabab Muhammad and Takfir wal-Hijra, Ibrahim (1980) finds that militants were middle or lower-middle class (e.g. father in middle grade of civil service); university educated, often in elite faculties such as engineering and medicine; more educated than their parents; and urban-based, recent migrants from rural areas or small towns. This pattern of terrorists who are neither poor nor uneducated is repeated in the Singapore Parliamentary report on captured members of terrorist cells in Southeast Asia (Singapore Ministry of Home Affairs 2003), studies of Palestinian militants (Hassan 2001, Benmelech & Berrebi 2007), and the range of violent groups studied by Krueger & Laitin (2003) and Kruger & Malečková (2003). More recently, the approximately 6000 Europeans estimated to have fought for ISIS in Syria came primarily from Belgium, France, Germany and the UK, that is, the more developed countries (Benmelech & Klor 2018). More systematic evidence that terrorism increases with GDP per capita is provided by Kis-Katos et al. (2011).

Political motivations for terrorism have greater empirical support. On jihadism, Burgat (2008) writes, "[...] behind the veil of religious rhetoric, it is for the recognition of some very universal rights" [p. 8]. Burgat points in particular to the loss of dignity inflicted upon Muslims by colonization, secularization and modernization. Empirical work links terrorism to contemporary political repression. Kruger & Malečková (2003) find that the number of international terrorist events originating from a country is unrelated to GDP per capita, but negatively related to an index of civil liberties. Abedie finds a U-shaped relationship between a country's political freedom and the number of terrorist events it experiences. Repression by autocratic regimes might increase the demand for terrorism, but such regimes are also able to prevent terrorism through draconian measures. Also consistent with the political view is evidence that aggressive counter-terrorism actions can backfire and spur terrorism. For example, Mahmood & Jetter (2019) use an instrumental variable strategy based on wind strength to show that US drone strikes in Pakistan led to a significant rise in terror attacks

between 2006 and 2016. A key channel was increased support for terrorist attacks among moderates.

A third potential non-religious motivation is psychological. Of course, religious terrorism could simply be the product of psychopathology. This is not borne out in the data. For example, Ibrahim (1980) finds that Egyptian terrorists had cohesive families and no major life traumas. In an international sample, Sagerman (2004) too finds no evidence of psychopathology. An alternative, more persuasive theory, is proposed by Roy (2017) based on his analysis of European jihadists described in the introduction. Roy argues that for terrorists, "Violence is not a means. It is an end in itself" [p. 5]. According to this view, there is a baseline share of violent people in any population. For them, violence is a preference and no external motivation is required to engage in it. For example, while property crime is linked to low wages and education, violent crime is not (see Kruger & Malečková 2003, p. 121). Any number of ideological systems could be called upon to legitimize violence in the form of terrorism. Hence we must "[...] understand why and how rebellious youths have found in Islam the paradigm of their total revolt" [p. 6]. Roy suggests, "The only thing available on the market for the new rebels in search of a cause is thus al-Qaeda or ISIS" [p. 71]. He adds that what Al-Qaeda and ISIS provide is not religion, but rather "fascination for death" or nihilism, not unlike suicide cults.

The various strands of the substitution hypothesis agree that religion plays no causal role in terrorism. To combat terrorism, one must address its root causes, especially political repression. The substitution hypothesis does not, however, explain why terrorist groups that identify as religious are more lethal. In particular, why are suicide attacks by such groups more frequent and lethal than those conducted by secular groups (Pape 2005, Berman 2009)? In addition, if religion is just one of many languages used to express underlying grievances, then the grievances producing religious terror should be the same as those producing terror in the name of other ideologies. On the contrary, Kis-Katos et al. (2014) show that different types of terror draw on distinct grievances. There appears to be something special about religious terrorism.

4 The Religious Utility Hypothesis

According to the religious utility hypothesis, religion is not a direct cause of terrorism. But nor is religion irrelevant. Instead it is the usefulness of religion as a source of meaning and belonging to large numbers of people that makes it so attractive for terrorist organizations to pursue their political and cosmological goals within a religious ecology. By tying the duty to perform violent acts to an individual's faith and community, terrorist organizations can (1) elicit costlier sacrifices (e.g. suicide bombing), even when these actions run counter to the actor's moral convictions, (2) motivate a small group of extreme types to radicalize a larger community, and (3) use moderate religious organizations for recruitment and incubation of more extreme groups. Thus terrorist organizations piggyback on religious ideology and institutions. As we shall see, this hypothesis produces novel conclusions in terms of welfare and policy.

I will set out the religious utility hypothesis and its implications using a simple model combined with a survey of recent theoretical work (Carvalho 2016, Carvalho & Sacks 2020, in preparation). Before doing so, let me first briefly describe the connection between the religious utility hypothesis and the economics of religion literature. Comprehensive surveys of the economics of religion are presented by Iannaccone (1998) and Iyer (2016). The utility of religion is at least implicit in models of religion, even those that attribute no special status to religious belief and ritual. For example, club models of religion make the point that seemingly bizarre and costly religious practices, including rules for dress, diet and ritual, can be explained without resort to religious belief (Iannaccone 1992, Berman 2000, McBride 2007). Extending the club model of religion, Berman (2009) describes how strict, close-knit religious communities can make the transition from benign activities, such as religious ritual, risk sharing and social service provision, to terrorist activities. In particular, their high entry costs, complex behavioral codes and internal cohesion make them less susceptible to monitoring and infiltration by security agencies (Iannaccone & Berman 2006, Berman & Laitin 2008). This is especially important in conducting suicide attacks on 'hard targets'

that are impervious to conventional modes of attack. McBride & Richardson (2012) present a club model in which a terrorist organization recruits suicide bombers from a religious group. Among other things, the greater the value of religious participation, the easier it is for the terrorist organization to screen and train recruits. These are important antecedents, forming part of the religious utility hypothesis I present, which in addition emphasizes the social-psychological benefits of religious belief and ritual. I argue that this is why secular groups cannot replicate the strict club structure of religious groups.

4.1 Religious Meaning and Belonging

What are the psychological benefits of religion? An immediate answer is that belief in supernatural punishment increases trust and cooperation within groups. Sosis & Alcorta (2008) propose that religious belief and ritual have evolved to cultivate and signal group commitment, enabling religious groups to elicit extraordinarily costly sacrifices by members. This makes religion an effective vehicle for terrorism. The religious utility hypothesis I propose is a little different, emphasizing the psychological benefits of religion to the individual, especially in terms of meaning and belonging (Baumeister & MacKenzie 2011). Of course, it could be that partly secular ideologies, including mindfulness and other forms of spirituality, produce similar psychological benefits and attract a larger number of adherents in the future.

Concerns about poverty and hunger around the world seem to have been replaced by a mental health crisis, marked by rising anxiety, depression and other conditions (e.g. Kessler et al. 2005). In the United States, the fraction of adolescents experiencing a major depressive episode rose by one third between 2005 and 2015 to 12.5 percent (Fruehwirth et al. 2019) and there has been a marked rise in 'deaths of despair' (Case & Deaton 2020). Conditions such as anxiety are also rising and more prevalent in high-income countries (Ruscio et al. 2017). Could the value of religion as a prophylactic or therapeutic measure for mental health conditions be rising? There is longstanding evidence that religion has negative effects on mental health, dating back to at least Freud (2012). One might expect dysfunctional religions especially where religion is coerced, as in theocratic states. Recent studies, however, tend to

emphasize the positive effects of religion (Koenig & Larson 2001). The difficulty is identifying the causal effect of religion on mental health outcomes. For example, stable families exhibit greater religious participation. Such families might also have better mental health outcomes because of their stability, not their religiosity.

Fruehwirth, Iyer & Zhang (2019) attempt to identify the causal effect of religion by exploiting exogenous variation in the distribution of religious traits in school peer groups. Since an individual's religiosity is influenced by her peer group, this enables the authors to construct an arguably exogenous measure of individual religiosity. It turns out that religion lowers the rate of depression among adolescents. The effect is more than twice as large as increasing a mother's educational attainment from no high school to high school degree. The authors proceed to show that religion works to lower depression by helping students to cope with traumatic events, including health shocks and suicide of friends or family members. Similarly, Dehejia et al. (2007) find that weekly religious attendance by African Americans fully offsets the impact of income declines on happiness. Moreover, there is evidence that individuals increase religious participation in response to such shocks, as hypothesized by Binzel & Carvalho (2017). For example, Bentzen (2019) finds that individual-level religiosity increases in response to earthquakes and other natural disasters. Hence it appears that religion provides psychological benefits that are difficult for secular ideologies and institutions to replicate.

More specifically, I speculate that religion provides a sense of meaning and belonging that is missing for large numbers of people in contemporary societies, in which individuals are often dislocated and atomized. It is this function that gives religious terrorist groups an advantage. Religion attaches meaning to various acts including work, marriage and especially death. Regarding belonging, we have noted that terrorists do not appear to be poor, uneducated or suffer from psychopathology. Social structure, however, seems to matter for joining a terrorist group. In particular, either families join together or it is isolated individuals who are recruited. Ibrahim (1980) finds that Egyptian militants are often rural migrants to the peripheral suburbs of Cairo, who live alone and have been dislocated from family and

village networks. Hence disruption to the Egyptian social structure due to rural-to-urban migration may have been a key factor in the rise of terrorism in Egypt from the 1970s. The pattern of terrorists experiencing social and cultural disruption is also found in the database constructed by Roy (2017). There is a disproportionate number of orphans among terrorist recruits from Europe. They are also usually second-generation immigrants, who have not been fully assimilated into the host society, but also have no ties to their families' countries of origin. Another pattern consistent with religion providing a greater sense of belonging is the formation of terrorist groups around existing family and friendship networks (Roy 2017, p. 24).

I will now present a simple model in which a leader exploits religious meaning and belonging to motivate group members to engage in terrorist activity.

4.2 A Model of Terror Bundled with Religion

Consider a set of n individuals who can join a religious group or not. Religious participation is valuable to these individuals. The leader of the religious group does not care about religion *per se*, but rather has political goals to which he wants group members to contribute. All individuals who join the religious group are required to take an action $s \in [0, \bar{s}]$, which is chosen by the religious leader. Higher values of s are interpreted as more extreme/intensive terrorist activity. Let m be the number of individuals who join the group. The leader maximizes total terrorist activity ms.

Terrorism runs counter to each individual's moral convictions, and they experience dissonance costing ds from engaging in it, where $d > 0$. Alternatively, they can revise their moral convictions at a (psychic) cost of $c > 0$ and experience no dissonance. Hence individuals revise their morals if they join the group and $ds \geq c$, or rather $s \geq c/d$. This is consistent with the theory of cognitive dissonance (Festinger 1957, Akerlof & Dickens 1982), as well as models of the 'psychological immune system' developed by Bénabou & Tirole (2002, 2006, 2016). The reason that individuals might be willing to bear these costs is that religion provides members with meaning and belonging. The greater the utility of religion, the further

the leader can push members in terms of demands for terrorist activity.

Suppose the leader announces a requirement of s. Observing this, individuals must choose whether to join the group and, if so, whether to revise their moral convictions. I assume the payoff from not joining the group is $\alpha(n-m)$, where $\alpha > 0$, reflecting network externalities. That is, it is more attractive not to join when there are many others outside of the group ($n-m$ is large). The payoff from joining the group depends on whether an individual revises his moral convictions, denoted by $\theta = 1$, or not, denoted by $\theta = 0$, as follows:

$$\mu + (\alpha + \beta)m - (1-\theta)ds - \theta c. \tag{1}$$

Consistent with the hypothesis described in Section 4.1 that religion provides meaning and belonging, religion here is valuable in two respects. First, it provides 'meaning' worth $\mu > 0$ above and beyond secular activity. Second, it increases the utility from others joining by a factor of $\beta > 0$. I call this 'belonging'.

Anticipating membership choices for each action s, the leader sets the optimal s at the beginning of the game. There can be multiple stable equilibria, specifically an equilibrium in which everyone joins ($m = n$) and one in which nobody does ($m = 0$). We select the risk dominant equilibrium, which is well known to have attractive properties (Harsanyi & Selten 1988, Young 1998). For the equilibrium in which everyone joins to be risk dominant, it must be a best response to join whenever half of individuals join, that is, when $m = \frac{1}{2}n$.

There are two cases to consider. First, if $s < c/d$, no individual revises his moral convictions ($\theta = 0$). Then the condition for all individuals joining to be risk dominant is:

$$\mu + (\alpha + \beta)\tfrac{1}{2}n - ds \;\geq\; \alpha\tfrac{1}{2}n \tag{2}$$

$$s \;\leq\; \frac{\mu + \tfrac{1}{2}\beta n}{d}. \tag{3}$$

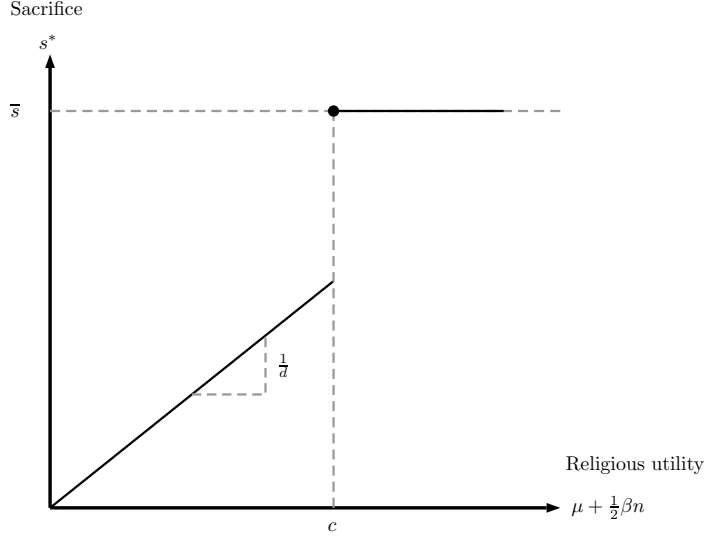Second, if $s \geq c/d$, all individuals revise their moral convictions ($\theta = 1$). In this case, the

Figure 1: Optimal sacrifice s^* as a function of religious utility.

condition is:

$$\mu + (\alpha + \beta)\tfrac{1}{2}n - c \ \geq \ \alpha\tfrac{1}{2}n \tag{4}$$

$$c \ \leq \ \mu + \tfrac{1}{2}\beta n. \tag{5}$$

To maximize ms, the leader chooses the largest s that makes all individuals joining risk dominant. That is,

$$s^* = \begin{cases} \dfrac{\mu + \tfrac{1}{2}\beta n}{d} & \text{if } \mu + \tfrac{1}{2}\beta n < c \\ \overline{s} & \text{if } \mu + \tfrac{1}{2}\beta n \geq c. \end{cases} \tag{6}$$

Therefore, if the utility from religious meaning and belonging $\mu + \tfrac{1}{2}\beta n$ is low (less than c), the sacrifice required by members in terms of terrorist activity is increasing in religious utility and decreasing in dissonance. When religious utility is high, the religious leader can demand the maximal sacrifice $\overline{s}$ and still stabilize the equilibrium in which everyone joins. Hence a small increase in religious utility can lead to a large jump in religious terrorism. This is depicted in Figure 1.

In his seminal work, Berman (2009) emphasizes the advantage of religious groups in terrorist activity. He attributes this to their strict club structure and their ability to induce members to make costly sacrifices. That is why many militant religious groups, including Hamas and

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Hezbollah, were able to transition from more benign charitable organizations to terrorism. I have shown here why religious groups might be able to elicit costlier sacrifices. If religious participation provides a sense of meaning and belonging that is difficult for secular groups to replicate, then members of religious groups can be pushed further in terms of actions that run counter to their moral convictions. If religious utility is large enough, individuals may even alter their moral convictions to benefit from the religious goods provided, while reducing the dissonance from their participation in terrorist activity. From this perspective, religion is not a direct cause of terrorism, nor is it unimportant. Rather terrorists piggyback on religion, pursuing their political and cosmological goals by bundling terrorism with individuals' faith and community. They can do so because of the utility of religion.

4.3 Secularization and Terrorism

Will secularization reduce the utility of religion and thereby limit terrorism? As religion is brought into competition with secular activities, it could be that religious participation and belief decline. For example, Gruber & Hungerman (2008) show that the repeal of 'blue laws', which prohibit retail activity on Sunday, led to a decline in church attendance and donations in the United States. While this applies to religious participation as a form of leisure, it might not apply to the psychological function of religion. If secular ideologies and institutions are unable to replicate the psychological benefits of religion, the value of joining a religious group may rise as mainstream society becomes more secular.

To see why, consider the club model of identity formation presented by Carvalho (2016), which can be interpreted as follows. There is a set of individuals in the population who wish to acquire religious beliefs. Religious beliefs are produced and reinforced in groups, so this is not a simple matter of individual choice. The cultural transmission of religious beliefs in groups creates free-rider and externality problems. Free riders can acquire religious belief from other members of the group without themselves investing in belief. Likewise, non-believers can undermine the belief and commitment of other group members. Religious organizations can mitigate these problems by setting rules for participation and excluding

non-members from socialization. Religious participation produces religious beliefs for the individual, but may create tangible goods such as public good provision and political activism that are beneficial to religious leaders. If the religious leader wishes to pursue political goals through terrorism, then he might bundle demands for religious participation with terrorist activity, as in the model I presented in Section 4.2.

How far can a religious leader push members in terms of demands for participation? If an individual does not become a member, he acquires a mainstream set of beliefs passed down through the education system and media. The greater the distance between religious beliefs and mainstream beliefs, the more valuable joining the religious group is for an individual who wishes to acquire religious belief. The twentieth century saw a marked secularization of institutions in much of the developed world and beyond. Roy (2017) describes the difficulty European Muslims face in "[...] conforming to the wishes of our society, which has become so secularized that any outward sign of faith appears at best incongruous, at worst threatening" [p. 7]. Such secularization makes mainstream norms and beliefs a poorer substitute for religious ones, thus raising the value of joining a religious group. Hence secularization means that religious leaders can push members further in terms of demands for participation, including potentially participation in terrorism. Likewise, the more extreme the religious doctrine is relative to mainstream beliefs, the greater the sacrifices a religious leader can elicit. While religion can be directly relevant to terrorism when it justifies violence, here religious doctrine is indirectly relevant in that it provides psychological benefits to members that can be exploited by terrorist leaders.

4.4 Dynamic Radicalization Strategies

In the model presented in Section 4.2, religious utility (μ, β) was the same for all individuals. However, the utility of religion is not fixed, nor is it constant across individuals, as in models of religious capital formation (Iannaccone 1990, McBride 2015) and cultural transmission (Bisin & Verdier 2000, 2001). Suppose a community consists of mainly religious moderates with low (μ, β). The static version of the religious utility hypothesis described so far would

predict low levels of religious terrorism. But this might not be the case in the long run. A dynamic version of the hypothesis can be constructed in which high levels of terrorism arise under more general conditions.

Carvalho & Sacks (2020) develop a dynamic club model of religion with cultural transmission of religious beliefs/preferences. They identify two dynamic strategies that religious leaders can use to convert a moderate religious community into a strict club in which all community members are highly attached to their religion. They call this process 'radicalization'. First, if active group members have disproportionate influence in cultural transmission, then a religious leader can form a small but extreme club from the high-attachment types in the community. Their religious participation can then be used to increase religious attachment among non-members. In this way, the exclusive club grows, becomes increasingly strict, and may ultimately absorb the entire community. Second, if mainstream society responds to the formation of a strict club within a religious community with blanket discrmination against all community members, then a religious leader can reduce the outside options of members by raising strictness. Poorer outside options allow the club to further raise strictness, while still attracting community members. This process can continue until the club is completely insulated from outside competition for members' time and resources. They call this process 'niche construction', an important concept in evolutionary biology (Odling-Smee et al. 2003). The greater the utility of religion, at least to high-attachment types, the easier it is to radicalize the community through these methods.

Hence a religious community does not need to start out with uniformly high religious utility for the religious utility hypothesis to operate. Rather it could be transitioned to such a state by various dynamic radicalization strategies on the part of religious leaders. Carvalho & Sacks (2020) show, however, that competition among religious leaders in the community limits these radicalization strategies and moderates religious participation more generally. For example in the model I presented in Section 4.2, free entry by religious entrepreneurs would lead to religious goods being provided without requiring participation in terrorist acts, $s = 0$. The limitation of this argument is that an individual's faith and community may

become attached to a specific group over time, as predicted by the religious capital approach (Iannaccone 1990, McBride 2015). In this sense, religious utility (μ, β) is group specific, what McBride & Richardson (2012) call 'group capital'. In addition, because of the illegal nature of terrorist activities, exit may not be an option once an individual is active within a group.

4.5 THE SEARCH PROBLEM

A second variant of the religious utility hypothesis can be constructed from a paper by Carvalho & Sacks (in preparation) titled 'Searching for Extremists'. The critical barrier to formation of radical organizations is the search problem. Individuals who are attracted to radical ideologies and willing to make extreme sacrifices are rare in the population. This makes random search for extremists unprofitable. In addition, such organizations are often illegal, so they cannot openly recruit through conventional means, though of course the internet makes this easier. However, the existence of moderate organizations can solve the search problem in a dynamic way. Once a moderate religious organization is formed, a slightly more radical group can infiltrate it to conduct a *directed search* for its more extreme members. Once this more radical organization is formed, an even more radical organization can conduct directed search for its more extreme members, and form an even more radical group. Hence there can be a cascade of extremism, with increasingly radical terrorist groups emerging over time, as in Syria from 2011.

Greater utility of religion fuels this process in two ways. First, when religious utility is high, the initial moderate organization will attract more extreme types, making directed search more profitable for radical groups. Second, the state will be unable to suppress moderate religious groups (e.g. mainstream mosques) without very costly conflict, because of their value to the community. Hence the psychological benefits of religion, including religious meaning and belonging, can help terrorist groups solve their critical search problem. This adds to the religious utility explanation for why religious terrorist groups are widespread and more lethal than secular groups.

5 Conclusion

This chapter has surveyed two existing theories of the link between religion and terrorism. Under the maladaptation hypothesis, religion is a direct cause of terrorism. Secularization is the key to combating terrorism. Under the substitution hypothesis, religion is incidental to terrorism. To combat terrorism, one must address its root causes, especially in terms of political repression. I have proposed an alternative theory, called the religious utility hypothesis, in which terrorists exploit the value of religion to elicit costly sacrifices that run counter to moral convictions, radicalize communities, and hijack moderate religious organizations for recruitment and incubation of more extreme groups. From this perspective, suppressing religion can be welfare reducing, removing a source of meaning and belonging that may be difficult to replace. Religious terrorism, as I have described it here, is primarily a top-down phenomenon. Rather than trying to culturally transform entire religious communities, counter-terrorism policies should focus on ensuring terrorist organizations do not infiltrate and exploit the religious ecology. Various policies could be explored for doing so, such as regulation of foreign clerics, rotation of clerics, and so forth. Of course, many such policies could violate principles of religious freedom and may backfire. Another key area for future research is the role of secular, but quasi-religious, organizations in coordinating political violence.

References

Aimone, J. A., Iannaccone, L. R., Makowsky, M. D. & Rubin, J. (2013), 'Endogenous group formation via unproductive costs', *Review of Economic Studies* **80**(4), 1215–1236.

Akerlof, G. A. & Dickens, W. T. (1982), 'The economic consequences of cognitive dissonance', *American Economic Review* **72**(3), 307–319.

Alcorta, C. S. & Sosis, R. (2005), 'Ritual, emotion, and sacred symbols', *Human nature* **16**(4), 323–359.

Avalos, H. (2005), *Fighting Words: The Origins of Religious Violence*, Prometheus Books.

Baumeister, R. F. & MacKenzie, M. (2011), 'Believing, belonging, meaning, and religious coping', *Religion, Brain & Behavior* **1**(3), 216–219.

Bénabou, R. & Tirole, J. (2002), 'Self-confidence and personal motivation', *Quarterly Journal of Economics* **117**(3), 871–915.

Bénabou, R. & Tirole, J. (2006), 'Belief in a just world and redistributive politics', *Quarterly Journal of Economics* **121**(2), 699–746.

Bénabou, R. & Tirole, J. (2016), 'Mindful economics: The production, consumption, and value of beliefs', *Journal of Economic Perspectives* **30**(3), 141–64.

Benmelech, E. & Berrebi, C. (2007), 'Human capital and the productivity of suicide bombers', *Journal of Economic Perspectives* **21**(3), 223–238.

Benmelech, E. & Klor, E. F. (2018), 'What explains the flow of foreign fighters to ISIS?', *Terrorism and Political Violence* pp. 1–24.

Bentzen, J. S. (2019), 'Acts of God? Religiosity and natural disasters across subnational world districts', *The Economic Journal* **129**(622), 2295–2321.

Berman, E. (2000), 'Sect, subsidy, and sacrifice: An economist's view of Ultra-Orthodox Jews', *Quarterly Journal of Economics* **115**(3), 905–953.

Berman, E. (2009), *Radical, Religious, and Violent: The New Economics of Terrorism*, MIT Press, Cambridge, MA.

Berman, E. & Laitin, D. D. (2008), 'Religion, terrorism and public goods: Testing the club model', *Journal of Public Economics* **92**(10-11), 1942–1967.

Binzel, C. & Carvalho, J.-P. (2017), 'Education, social mobility, and religious movements: The Islamic revival in Egypt', *The Economic Journal* **127**(607), 2553–2580.

Bisin, A., Carvalho, J.-P. & Verdier, T. (forthcoming), Cultural transmission and religion, *in* R. Sauer, ed., 'Handbook of Economics and Religion', World Scientific.

Bisin, A. & Verdier, T. (2000), '"Beyond the melting pot": Cultural transmission, marriage, and the evolution of ethnic and religious traits', *The Quarterly Journal of Economics* **115**(3), 955–988.

Bisin, A. & Verdier, T. (2001), 'The economics of cultural transmission and the dynamics of preferences', *Journal of Economic Theory* **97**(2), 298–319.

Bisin, A. & Verdier, T. (2017), 'On the joint dynamics of culture and institutions', NBER Working paper No. 23375.

Bloom, M. (2005), *Dying to Kill: The Allure of Suicide Terror*, Columbia University Press.

Bulbulia, J. (2004*a*), 'The cognitive and evolutionary psychology of religion', *Biology and philosophy* **19**(5), 655–686.

Bulbulia, J. (2004*b*), 'Religious costs as adaptations that signal altruistic intention', *Evolution and Cognition* **10**(1), 19–38.

Burgat, F. (2008), *Islamism in the Shadow of al-Qaeda*, University of Texas Press.

Carvalho, J.-P. (2013), 'Veiling', *The Quarterly Journal of Economics* **128**(1), 337–370.

Carvalho, J.-P. (2016), 'Identity-based organizations', *American Economic Review: Papers and Proceedings* **106**, 410–414.

Carvalho, J.-P. (2019), Religious clubs: The strategic role of religious identity, *in* J.-P. Carvalho, S. Iyer & J. Rubin, eds, 'Advances in the Economics of Religion', Palgrave.

Carvalho, J.-P. & Sacks, M. (2020), 'Radicalization', working paper.

Carvalho, J.-P. & Sacks, M. (in preparation), 'Searching for extremists'.

Case, A. & Deaton, A. (2020), *Deaths of Despair and the Future of Capitalism*, Princeton University Press.

Cox, H. (2009), *Fire from heaven: The rise of Pentecostal spirituality and the reshaping of religion in the 21st century*, Da Capo Press.

Dawkins, R. (1976), *The Selfish Gene*, Oxford University Press.

Dawkins, R. (1991), 'Viruses of the mind'.

Dehejia, R., DeLeire, T. & Luttmer, E. F. (2007), 'Insuring consumption and happiness through religious organizations', *Journal of Public Economics* **91**(1-2), 259–279.

Festinger, L. (1957), *A theory of cognitive dissonance*, Vol. 2, Stanford university press.

Freud, S. (2012), *The Future of an Illusion*, Broadview Press. Original work published in 1927.

Fruehwirth, J. C., Iyer, S. & Zhang, A. (2019), 'Religion and depression in adolescence', *Journal of Political Economy* **127**(3), 1178–1209.

Gruber, J. & Hungerman, D. M. (2008), 'The church versus the mall: What happens when religion faces increased secular competition?', *Quarterly Journal of Economics* **123**(2), 831–862.

Harsanyi, J. C. & Selten, R. (1988), *A General Theory of Equilibrium Selection in Games*, MIT Press, Cambridge, MA.

Hassan, N. (2001), 'Letter from Gaza: An arsenal of believers', The New Yorker.

Hitchens, C. (2007), *God is not great: How religion poisons everything*, Twelve.

Iannaccone, L. R. (1990), 'Religious practice: A human capital approach', *Journal for the Scientific Study of Religion* pp. 297–314.

Iannaccone, L. R. (1992), 'Sacrifice and stigma: Reducing free-riding in cults, communes, and other collectives', *Journal of Political Economy* **100**(2), 271–91.

Iannaccone, L. R. (1998), 'Introduction to the economics of religion', *Journal of Economic Literature* **36**(3), 1465–1495.

Iannaccone, L. R. & Berman, E. (2006), 'Religious extremism: The good, the bad, and the deadly', *Public choice* **128**(1-2), 109–129.

Ibrahim, S. E. (1980), 'Anatomy of Egypt's militant Islamic groups: Methodological note and preliminary findings', *International Journal of Middle East Studies* **12**(4), 423–453.

Iyer, S. (2016), 'The new economics of religion', *Journal of Economic Literature* **54**(2), 395–441.

Johnson, D. (2011), 'Why god is the best punisher', *Religion, Brain & Behavior* **1**(1), 77–84.

Johnson, D. & Krüger, O. (2004), 'The good of wrath: Supernatural punishment and the evolution of cooperation', *Political theology* **5**(2), 159–176.

Jurgensmeyer, M. (2003), 'Terrorism in the mind of god'.

Kessler, R. C., Chiu, W. T., Demler, O. & Walters, E. E. (2005), 'Prevalence, severity, and comorbidity of 12-month dsm-iv disorders in the national comorbidity survey replication', *Archives of general psychiatry* **62**(6), 617–627.

Kis-Katos, K., Liebert, H. & Schulze, G. G. (2011), 'On the origin of domestic and international terrorism', *European Journal of Political Economy* **27**, S17–S36.

Kis-Katos, K., Liebert, H. & Schulze, G. G. (2014), 'On the heterogeneity of terror', *European Economic Review* **68**, 116–136.

Koenig, H. G. & Larson, D. B. (2001), 'Religion and mental health: Evidence for an association', *International review of psychiatry* **13**(2), 67–78.

Krueger, A. B. & Laitin, D. D. (2003), 'Kto kogo?: A cross-country study of the origins and targets of terrorism', unpublished paper.

Kruger, A. & Malečková, J. (2003), 'Educations, poverty and terrorism: Is there a causal link?', *Journal of Economic Perspectives* **17**(4), 119–144.

Levy, G. & Razin, R. (2012), 'Religious beliefs, religious participation, and cooperation', *American Economic Journal: Microeconomics* **4**(3), 121–51.

Mahmood, R. & Jetter, M. (2019), 'Military intervention via drone strikes', IZA Discussion Paper.

McBride, M. (2007), 'Club Mormon: Free-riders, monitoring, and exclusion in the LDS church', *Rationality and Society* **19**(4), 395–424.

McBride, M. (2015), 'Why churches need free-riders: religious capital formation and religious group survival', *Journal of Behavioral and Experimental Economics* **58**, 77–87.

McBride, M. & Richardson, G. (2012), 'Stopping suicide attacks: Optimal strategies and unintended consequences', *Defence and Peace Economics* **23**(5), 413–429.

Norenzayan, A. (2013), *Big gods: How religion transformed cooperation and conflict*, Princeton University Press.

Norris, P. & Inglehart, R. (2011), *Sacred and secular: Religion and politics worldwide*, Cambridge University Press.

Odling-Smee, F. J., Laland, K. N. & Feldman, M. W. (2003), *Niche construction: The neglected process in evolution*, Princeton University Press.

Pape, R. A. (2005), *Dying to Win*, Random House.

Popkin, J. D. (2016), *A Short History of the French Revolution*, Routledge.

Purzycki, B. G., Apicella, C., Atkinson, Q. D., Cohen, E., McNamara, R. A., Willard, A. K., Xygalatas, D., Norenzayan, A. & Henrich, J. (2016), 'Moralistic gods, supernatural punishment and the expansion of human sociality', *Nature* **530**(7590), 327–330.

Rogan, E. (2015), *The Fall of the Ottomans: The Great War in the Middle East*, Basic Books.

Roy, O. (2017), *Jihad and death: The global appeal of Islamic State*, Oxford University Press.

Ruscio, A. M., Hallion, L. S., Lim, C. C., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., Andrade,

L. H., Borges, G., Bromet, E. J., Bunting, B. et al. (2017), 'Cross-sectional comparison of the epidemiology of DSM-5 generalized anxiety disorder across the globe', *JAMA psychiatry* **74**(5), 465–475.

Sagerman, M. (2004), *Understanding terrorist networks*, Philadelphia, PA.

Simon, S. & Benjamin, D. (2000), 'America and the new terrorism', *Survival* **42**(1), 59–75.

Singapore Ministry of Home Affairs (2003), 'White paper—the jemaah islamiyah arrests'.

Sosis, R. (2000), 'Religion and intragroup cooperation: Preliminary results of a comparative analysis of utopian communities', *Cross-Cultural Research* **34**(1), 70–87.

Sosis, R. & Alcorta, C. (2008), 'Militants and martyrs: Evolutionary perspectives on religion and terrorism', *Natural security: A Darwinian approach to a dangerous world* pp. 105–124.

Sosis, R. & Bressler, E. R. (2003), 'Cooperation and commune longevity: A test of the costly signaling theory of religion', *Cross-cultural research* **37**(2), 211–239.

Sosis, R. & Ruffle, B. J. (2003), 'Religious ritual and cooperation: Testing for a relationship on Israeli religious and secular kibbutzim', *Current Anthropology* **44**(5), 713–722.

Stark, R. (2012), *America's blessings: How religion benefits everyone, including atheists*, Templeton Foundation Press.

Victoria, B. (1997), *Zen At War*, Weatherhill, New York.

Young, H. P. (1998), *Individual strategy and social structure: An evolutionary theory of institutions*, Princeton University Press.